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COUNTRY ANALYSIS BRIEFS

Saudi Arabia

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Saudi Arabia is the largest oil producer of the Organization of the Petroleum Exporting Countries (OPEC). With approximately one-fifth of the world's proven oil reserves and some of the lowest production costs, Saudi Arabia is expected to remain the world's largest net oil exporter in the near and long-term.

Background

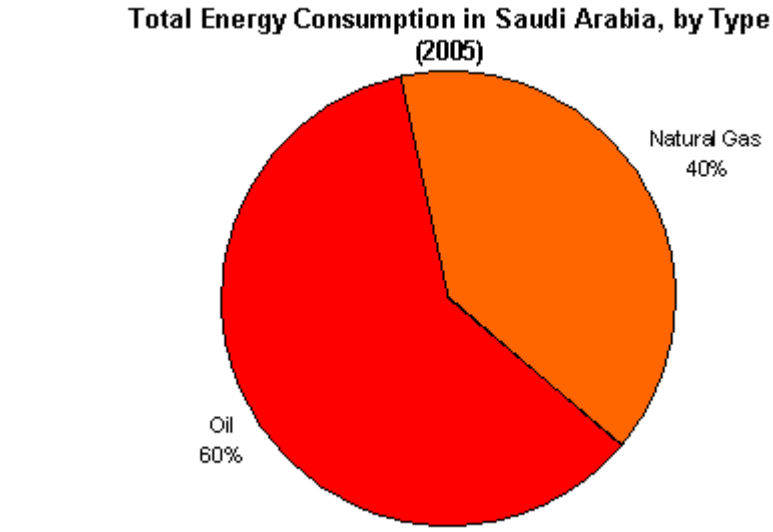
Overview

Saudi Arabia is the world's largest producer and exporter of total petroleum liquids and is currently the world's second largest crude oil producer behind Russia. Saudi Arabia's economy remains heavily dependent on oil and petroleum-related industries, including petrochemicals and petroleum refining. The International Monetary Fund reported that in 2006, the last available data, oil export revenues accounted for around 90 percent of total Saudi export earnings and state revenues and above 40 percent of the country's gross domestic product (GDP).

Saudi Arabia's hydrocarbon sector operations are dominated by the state-owned oil company, Saudi Aramco. Saudi Aramco is the world's largest oil company in terms of proven or "booked" reserves and production of hydrocarbons. In addition, Saudi Arabia's Ministry of Petroleum and Mineral Resources and the Supreme Council for Petroleum and Minerals has oversight of the sector and Saudi Aramco directly. The Supreme Council, which is comprised of members of the royal family, industry leaders and government ministers, is responsible for petroleum and natural gas policy-making, including contract review, as well as Saudi Aramco's strategic planning. The Ministry is responsible for national planning in the area of energy and minerals, including petrochemicals.

Energy Consumption

Saudi Arabia is the fastest growing consumer of energy in the Middle East, particularly in the area of transportation fuels. Domestic consumption growth has been spurred by the economic boom due to historically high oil prices and large fuel subsidies. In 2005, Saudi Arabia was the 15th largest consumer of total primary energy, of which 60 percent was petroleum-based. The remainder was made up of natural gas, the growth of which has been limited by supply constraints.



Source: EIA International Energy Annual 2005

Oil

Saudi Arabia, housing the world's largest crude production capacity, has undertaken an ambitious five-year, $129-billion energy investment plan, nearly $60 billion of which will be directed toward increasing upstream petroleum capacity to an estimated 12.5 million bbl/d by 2009.

Reserves

According to the Oil and Gas Journal, Saudi Arabia contains approximately 267 billion barrels of proven oil reserves (including 2.5 billion barrels in the Saudi-Kuwaiti shared "Neutral" Zone), amounting to around one-fifth of proven, conventional world oil reserves. Around two-thirds of Saudi reserves are considered "light," "extra light" or "super light" grades of oil, with the rest either "medium" or "heavy." Although Saudi Arabia has around 100 major oil and gas fields (and more than 1,500 wells), over half of its oil reserves are contained in only eight fields, including the giant 1260-square mile Ghawar (the world's largest oil field, with estimated remaining reserves of 70 billion barrels) and Safaniya, including Khafji and Hout (the world's largest offshore oilfield, with estimated reserves of 20 billion barrels).

Production Capacity

Saudi Arabia maintains the world's largest crude oil production capacity, estimated to be around 10.5 - 11 million bbl/d, at mid-year 2008. In 2005, Saudi Arabia's Ministry of Petroleum and Mineral Resources announced the details of a plan to increase this capacity to 12.5 million bbl/d by 2009, the detail of which are outlined below.

Production & Consumption

For 2007, the U.S. Energy Information Administration (EIA) estimates that Saudi Arabia produced on average 10.2 million bbl/d of total oil, comprising crude oil, lease condensate, natural gas liquids, and other liquids (including half of the Saudi-Kuwaiti Neutral Zone's 600,000 bbl/d). In addition to 8.7 million bbl/d of crude oil, Saudi Arabia produced around 1.5 million bbl/d of natural gas liquids (NGLs) and other liquids, which are not subject to OPEC quotas. Saudi Arabia, a leading world producer of NGLs, has experienced a rise in demand for NGLs from developing countries, including India (the leading export destination), where is it used for cooking and transportation. In the first and second quarters of 2008, Saudi Arabia's production rose to an estimated 9.2 million bbl/d of crude oil, representing approximately 13 percent of total world crude production.

In response to historically high oil prices and rising demand, in June 2008, the Ministry of Petroleum and Mineral Resources announced that Saudi Arabia would increase production to around 9.7 million bbl/d in July 2008. As a result, Saudi Arabia will be producing at the highest level of crude since the early 1980s. The new capacity is expected to come primarily from the Khursaniyah development.

Saudi's main producing fields include:

1) Ghawar (onshore): The main producer of more than 5 million bbl/d of 34^{o} API Arabian Light crude. Ghawar's main producing structures are, from north to south: Ain Dar,

Shedgum, Uthmaniyah, Hawiya, and Haradh. Ghawar alone accounts for about half of Saudi Arabia's total oil production capacity, and is the world's largest oil field.

2) Abqaiq (onshore): Produces approximately 400,000 bbl/d Arab Extra Light crude.

3) Najid (onshore): Since 1994, the Najd fields, which include the Hawtah field and smaller satellites (Nuayyim, Hazmiyah) south of Riyadh, have been producing around 200,000 bbl/d of Arab Super Light.

4) Safaniya (offshore): Producing around 1 million bbl/d of Arab Heavy Crude in 2007 (around 1.2 million bbl/d capacity).

5) Zuluf (offshore): Produces approximately 500,000 bbl/d of Arab Medium crude.

6) Marjan (offshore): Produces approximately 270,000 bbl/d of Arab Medium crude.

Map of Oil and Gas Fields in Saudi Arabia (2005)

Click the Map to Enlarge

Source: Saudi Aramco

Saudi Crude Streams

Saudi Arabia produces a range of crude oils, from heavy to super light. Of Saudi Arabia's total oil production capacity, about 65 to 70 percent is considered light gravity, with the rest either medium or heavy; the country is moving to reduce the share of the latter two grades. Lighter grades generally are produced onshore, while medium and heavy grades come mainly from offshore fields. Most Saudi oil production, except for "extra light" and "super light," is considered "sour," containing relatively high levels of sulfur.

Saudi Arabian Crude Streams			
Streams	**Estimated Production Capacity (2007E)**	**Average API**	**Main Fields**
Arab Super Light	250,000	40-50°	Najid fields, Hawtah, Ghinah, Hazmiyah
Arab Extra Light	1,400,000	36-40°	Berri, Abqaiq, Shaybah
Arab Light	7,000,000	32-36 (generally in the 33° - 34° range)	Ghawar (all structures), Khursaniyah and Khurais
Arab Medium	1,200,000	29°-32°	Zuluf, Abu Safah, Qatif, Marjan
Arab Heavy	1,200,000	<29, (Generally around 27.5° and below).	Safaniyah, Manifa
Source: Saudi Aramco, Global Insight, Energy Intelligence - International Crude Oil Market Handbook 2007, Lehman Brothers Petroleum Markets Update			

Domestic Consumption of Petroleum

In 2007, Saudi Arabia consumed approximately 2.3 million bbl/d of oil, up 50 percent since 2000, due to strong economic and industrial growth and subsidized prices. According to independent analysis quoted in industry reports, demand is expected to rise by eight to 10 percent through 2010, mostly in the area of electricity and NGLs for petrochemical production. In order to free up petroleum for export, Saudi Arabia continues to explore for natural gas resources throughout the country. Saudi Arabia is the largest oil consuming nation in the Middle East.

Upstream Capacity Developments through 2011

Saudi Arabia's long-term goal is to further develop its lighter crude reserves including the Shaybah field, located in the remote Empty Quarter (Rub al-Khali) area bordering the United Arab Emirates, the Abu Hadriya, Fadhili and Khursaniya (AFK) fields and the super giant Khurais. Although the Ministry has only committed to increasing capacity to 12.5 million bbl/d by 2009, potential increases to 15 million bbl/d capacity (post-2011) were discussed at a summit in Jeddah in June 2008.

Saudi Aramco continues aggressive plans to increase crude oil production capacity despite some recent delays; the following is a table of planed production capacity increases through 2011 (timetable as announced by Saudi Aramco).

Click HERE for a Table detailing Saudi Arabia's Upstream Petroleum Project Plans.

Notes on Upstream Projects

- The Shaybah field is the largest oil field in the world that has been developed in the past two decades. In addition to oil, Shaybah has a large natural gas "cap" (associated gas), with estimated reserves of 25 trillion cubic feet (Tcf). Gas production of 880 million cubic feet per day (Mcf/d) is re-injected. It is reported that possible gas recovery project could be implemented within 5 or 6 years, potentially for use in petrochemical production.
- In January 2008, Saudi Aramco announced that the Khursaniyah development would be delayed until at least the second quarter of 2008. Khursaniyah was originally expected to come online in June 2007, which was later changed to December 2007. No specific reasons were given for the delay, but contract negotiations, rising costs of labor and materials, as well as problems with the gas injection system have reportedly played a role.
- The development of the Khurais field will give Saudi Arabia the distinction of being the

only oil producer to have two “super giant” fields (including Ghawar), those which produce more than 1 million bbl/d of crude oil.

- The Manifa expansion, expected in 2011, will replace capacity lost to natural declines and support the capacity expansion.
- Some sources indicate that projects at Shaybah, Nuayyim and Khurais - like the AFK fields - projects could slip on their original deadlines by three to six months. Trade press recently reported that Khurais could come on in two phases, 800,000 bbl/d in 2009 and the rest in 2010.

Other Upstream Developments

In addition to these planned capacity increases, Saudi Aramco has stated that it will also conduct additional drilling at existing fields in order to help compensate for the natural declines from the mature fields. In April 2008, Saudi Aramco also announced a five-year plan beginning in 2009, to rapidly increase drilling exploration and investment in the oil sector. The plan includes increasing planned drilling by a third, to around 250 wells, with a priority in offshore area. However, increases in capacity development beyond the announced remain uncertain. Saudi Arabia’s Minister of Oil, Ali al-Naimi said in April 2008, that the “country was confident that it had enough oil to meet expected demand for another 50 years.”

In 2007, the Saudi Aramco Annual Review reported new oil discoveries at Mabruk and Dirwazah, in the Eastern Province. The Mabruk-1 well, the first discovery in the Hadriya reservoir south of Ghawar, produced 5,600 bbl/d of Arabian Heavy with 2 Mcf/d of natural gas. The Dirwazah-1 well produced approximately 5,569 bpd of Arabian Light) with 2.8 million Mcf/d of gas.

Additional Challenges to the Upstream Development Program

One challenge the Saudis face in achieving their strategic vision to add production capacity is that their existing fields experience, reportedly on average, 6 to 8 percent annual "decline rates” (as reported by *PlattsOilgram in 2006*) in existing fields, meaning that the country needs around 700,000 bbl/d in additional capacity each year just to compensate for natural decline. Decline estimates for Saudi Arabia vary widely, however. The Ministry of Petroleum maintains that decline rates in Saudi Arabia are around 2 percent annually.

Saudi Aramco, Saudi Arabia’s national oil company, estimates that the average total depletion for Saudi oil fields is 29 percent, with Abqaiq (the oldest) 74 percent depleted, the giant Ghawar field having produced 48 percent of its proven reserves and the younger Shaybah, just 5 percent depleted. Aramco also contends that Saudi oil reserves are likely underestimated, not overestimated, although some analysts have disputed Aramco's optimistic assessments of Saudi oil reserves and future production. Minister Al-Naimi has refuted these contrarian arguments, and stated that Saudi Arabia could add as much as 200 billion barrels of oil to proven reserves after the extended period of investment and exploration. In order to stave off decline, wells are undergoing reservoir management and rehabilitation projects, including the installation of SmartWell® technologies.

Saudi-Kuwaiti Neutral Zone; Bahrain

The Saudi-Kuwait Divided Zone or the “Neutral Zone”, 2230 square miles between the borders of Saudi Arabia and Kuwait that was left undefined in 1922, contains an estimated 5 billion barrels of proven oil reserves, shared between the two countries, from which approximately 600,000 bbl/d was produced in 2007. (See map)

Map of the Saudi – Kuwaiti Neutral Zone

Source: EIA, CIA World Factbook

In February 2008, The Kuwait Gulf Oil Company announced that the two countries were set to increase capacity in the Divided Zone to about 630,000 bbl/d by 2009. The increases are expected to come from the offshore area where steam injection technology will be employed.

Within the Neutral Zone, Japan's Arabian Oil Co. (AOC) traditionally operated the two offshore fields of Khafji and Hout with 300,000 bbl/d in production (approximately 150,000 bbl/d in 2007), but in February 2000, AOC lost the concession. Efforts to negotiate an extension of the operating contract with Saudi authorities failed when Japan refused to commit to investment in development projects desired by the Saudis, and Aramco took over operation of the former AOC fields (in January 2003, AOC reached an agreement with Kuwait on the right to purchase at least 100,000 bbl/d of crude for the next 20 years from Khafji). ChevronTexaco operates three onshore fields (Wafra, Humma, and South Umm Gudair) in the Divided Zone under a 60-year license that was renewed in July 2008. These fields have 2 billion barrels of proven reserves and total production of about 260,000 bbl/d of Arab Heavy oil. Finally, Bahrain and Saudi Arabia share the 300,000 bbl/d production of the Abu Safah offshore field.

Processing

Saudi Aramco operates the world's largest oil processing facility and crude stabilization plant in the world at Abqaiq, in Eastern Saudi Arabia, with a crude processing capacity of more than 7 million bbl/d. The plant processes the majority of Arabian Extra Light and Arabian Light crude oils, as well as NGLs. The facility's infrastructure includes pumping stations, GOSPs, hydro-desulphurization units, and an extensive network of pipelines that connects the plant to the ports of Ras al-Juaymah, Ras Tanura and Yanbu (for NGLs). Nearly two-thirds of Saudi crude is processed at Abqaiq before export or delivery to refineries. The facility has been the target of terrorist attacks (see Security Issues Section).

Refining

According to *Oil and Gas Journal*, Saudi Arabia has seven domestic refineries, with a combined crude throughput capacity of around 2.1 million bbl/d (of which Aramco's share is approximately 1.7 million bbl/d). Aramco also has interests in another 2 million bbl/d of refining capacity overseas, making it the sixth largest oil refiner in the world. The Saudi Aramco development plan calls for a $70-billion investment in the sector, increasing domestic refining capacity to 3 million bbl/d and international holdings by at least 1-2 million bbl/d by 2011, particularly in an effort to meet requirements of the fast-growing Asian market.

One of Saudi Aramco's strategies includes increasing private investment through joint ventures in refining activities, for which MOUs were signed on two projects in 2006 (Jubail and Yanbu'). As part of the privatization program, 30 percent of shares of new refineries will be offered to the public. The proposed facility at Jizan, which would be Saudi Arabia's first privately owned an operated refinery, is said to be under consideration for investment by the Chinese. Aramco has previously partnered with ExxonMobil at their 400,000-bbl/d facility at Yanbu' and with Shell at the existing 305,000-bbl/d facility at Jubail.

Proposed Refinery Additions and Expansion (2005 - 2013)

Project	Announced Completion Date	Capacity Increase (MMbbl/d)	Total Capacity (MMbbl/d)	Aramco Partners	Notes
Domestic					
PetroRabigh JV (expansion)	2008 (Q4)	60	460	Sumitomo Chemical (Japan)	Integrated oil refinery and petrochemical complex. Upgrade to shift product mix away from low-value heavy products towards gasoline and kerosene. Second upgrade(2010) to bring capacity up to 825,00 bbl/d has been proposed.
Jubail JV	2012 (Q4)	400	400	Total	Export-oriented, heavy conversion.
Ras Tanura	2012	400 - 440	400 - 440	None	For domestic consumption. Part of existing Ras Tanura refining complex, which will have a total capacity of approximately 950,000 bbl/d.
Yanbu' JV	2013	400	400	Conoco-Phillips	Export-oriented, heavy conversion.
Jizan	TBD (2012/2013)	250 - 400	250 - 400	TBD	Proposed. Reported to go to bid in 2008.
Yanbu' (expansion)	2010/2011	100	330	None	Proposed. Reported to go to bid in 2008.
Overseas					
Fujian, China	2007	80	240	Sinopec (50%) ExxonMobil (25%)	First of two facilities in China. Combined refinery and petrochemical plant.
Fujian, China (expansion)	2009 (Q1)	160			
Motiva-Port Arthur, TX (expansion)	2010	325	600	Shell	To be the largest U.S. refinery.
Sources: Dow Jones, Reuters, Oil Daily, Saudi Aramco, Global Insight, MEES, PFC					

Overseas Refining Investments

Saudi Arabia has approximately 2 million bbl/d interest in refining overseas in five main facilities in United States, China, South Korea, Japan and the Philippines. Saudi Aramco is also in talks with

Sinopec to participate in the ongoing construction of a second facility in the northern Chinese province of Shandong (Qingdao). Both plants are expected to be able to handle a combination of Arabian Light and Arabian Heavy crudes. The first shipments of Saudi crude arrived at Qingdao in May-June 2008.

In July 2004, Aramco signed an agreement with Shell to purchase a 15 percent share in Showa Shell Group, a refining and marketing company based in Japan. Under the deal, Aramco supplies Showa Shell with 300,000 bbl/d of crude oil. Saudi Arabia also owns a 7.9 percent share in AOC Holdings, which operates the 192,000-bbl/d Sodegaura refinery in Japan through a subsidiary, Fuji Oil, among other facilities.

In the Philippines, Aramco is conducting preliminary studies on a new $5-billion refinery at Mindanao, which will supply East Asia and the US West Coast. Aramco is also a 40 percent shareholder in Philippine Petron, which runs a 180,000-bbl/d refinery on the island, although they are reportedly planning to divest by the end of 2008.

In the United States, Saudi Aramco and partner Royal Dutch/Shell own three Motiva joint-venture refineries in Louisiana and Texas. The three facilities currently have a total capacity of around 745,000, or approximately 5 percent of the U.S. refining market. Saudi Aramco owns 50 percent of Motiva though a subsidiary, Saudi Refining. Plans to more than double the capacity at the Port Arthur facility will make it the largest refinery in the United States.

In March 2005, Saudi Arabia and India signed an agreement on oil cooperation; with the Saudis reportedly interested in acquiring a stake in India Oil Company's expansion of the 180,000-bbl/d Paradip refinery (it will reach 300,000-bbl/d by 2008). Saudi Aramco is reportedly considering taking a stake in Hindustan Petroleum Corporation Limited's (HPCL) Vishakhapatnam refinery (165,000 bbl/d capacity), which will double in capacity by 2010-2011. The status of the agreements is unknown.

Aramco also has a reported 35 percent interest in South Korea's 565,000-bbl/d SangYong (S-1) Oil Refining Company and a 50 percent share in the 100,000-bbl/d Motor Oil (Hellas) Corinth Refineries in Greece.

Gasoline Pricing

Gasoline and other refined fuels are sold in Saudi Arabia at some of the lowest prices in the world. Gasoline, diesel, LPG and other products are highly subsidized for domestic consumption. In May 2006, Saudi Arabia reduced the retail cost of gasoline by more than 30 percent, to the price of around $0.60 per gallon of premium gasoline (91) and $0.45 per gallon of regular gasoline (95). Saudi Arabia has phased out most leaded gasoline.

Security Issues

The Saudi petroleum pipeline and export network (and energy sector in general) remains a terrorism target. In February 2006, Saudi security prevented an attempted suicide bomb attack at the Abqaiq petroleum processing facility, after Al-Qaeda leadership called for renewed attacks against the country's economic backbone.

Nevertheless, energy infrastructure remains well-protected. Following the February incident, the government increased the National Guard and military security force to approximately 20,000, in addition to the 5000 guards employed directly by Aramco. Reportedly, security spending has been ramped up since a series of attacks against energy infrastructure and foreign nationals at al-Khobar were carried out in 2004. In June 2008, Saudi Arabia's Ministry of the Interior announced that they were holding suspected militants that were accused of planning a car bomb attack on an unspecified installation. Groups reportedly working in cooperation with Al-Qaeda have been operating in the Eastern Province and Yanbu.

In addition to direct security, Saudi Arabia is known to ensure export security by maintaining "redundancy" (i.e., multiple options for transportation and export) in its oil system, in part as a form of indirect security against any one facility being disabled.

Oil Exports and Shipping

Saudi Arabia is the world's largest (net) oil exporter and is a

Exports

Saudi Arabia is the world's largest (net) oil exporter and is a key oil supplier to the United States,

key oil supplier to the United States, Europe and Asia.

Europe and Asia. Saudi Aramco's plans to increase marketed oil production in the medium term hinges on the maintenance and expansion of the petroleum pipeline network, export facilities, and shipping capacity.

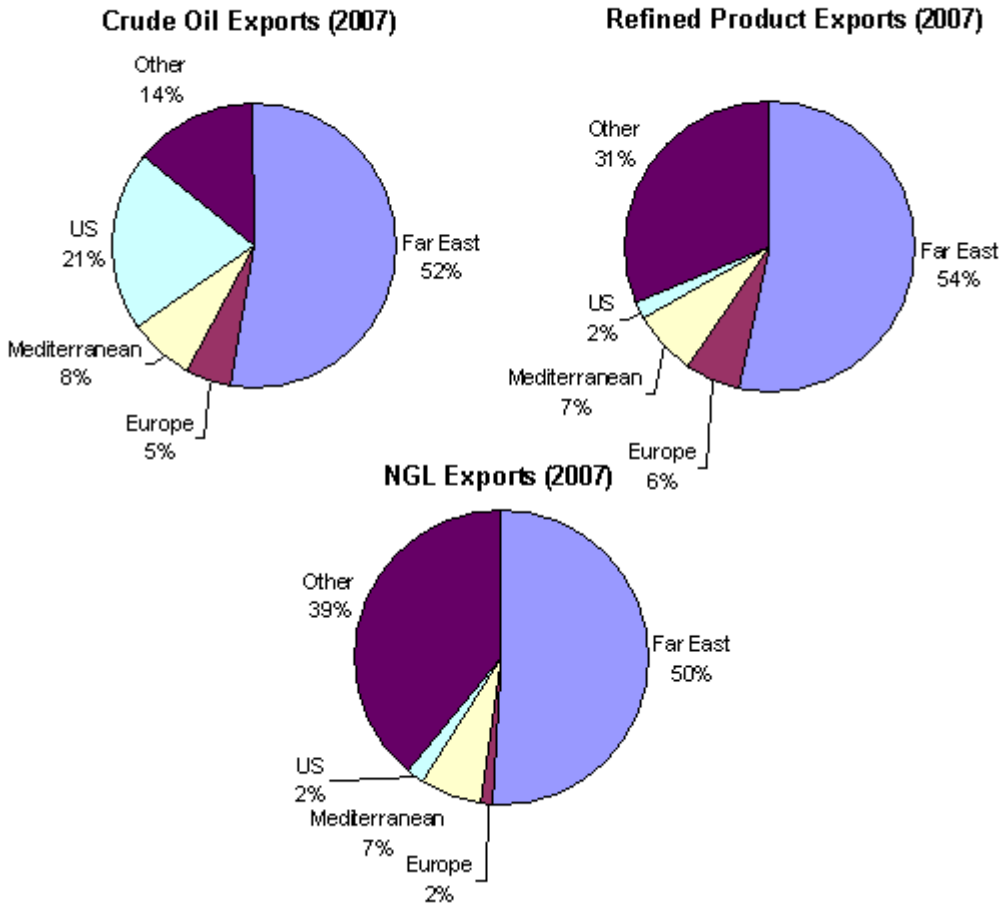
In 2006, Saudi Arabia exported an estimated 8.5 million bbl/d of petroleum liquids, the majority of which was crude oil. For 2007, EIA estimated that exports fell to 7.9 million bbl/d, of which approximately 85 percent was crude, 10 percent was NGLs and five percent was refined product.

Asia, including Japan, South Korea, China, and India, now receives an estimated 50 percent of Saudi Arabia's crude oil exports, as well as the majority of its refined petroleum product and NLG exports. Japan remains the single largest importer of Saudi crude in Asia. According to the International Energy Agency (IEA), in 2007, Japan imported an estimated 1.3 million bbl/d on average. In the same year, South Korea's imports from Saudi decreased by about 70,000 bbl/d to approximately 790,000 bbl/d.

China's imports continue to fluctuate widely. In 1995, Saudi Arabia was the 25th largest supplier of crude oil to China; while in 2007, Saudi Arabia was China's largest crude oil supplier (competing with Iran, Angola and Oman). In 2007, China imported approximately 520,000 bbl/d from Saudi Arabia. Trade press indicates that China boosted contracted oil purchases from Saudi Arabia by 38 percent for 2008, rising to approximately 790,000 bbl/d. China and Saudi Arabia recently signed a MoU which indicates that imports could rise to 1 million bbl/d by 2010.

In 2006 and 2007, Saudi Arabia exported an average of 1.46 million and 1.49 million bbl/d of crude oil respectively to the United States, accounting for 12 percent of U.S. crude oil imports. For this time period, Saudi Arabia ranked third (after Canada, Mexico,) as a source of oil imports to the United States.

The following series of graphs break out the percentage of exports by destination for the three main categories of oil exports.



Source: Saudi Aramco, 2007 Annual Review

Major Ports

Saudi Arabia has three primary oil export terminals:

1) The Ras Tanura complex has approximately 6 million bbl/d capacity; and the world's largest offshore oil loading facility. It includes the 2.5-million bbl/d port at Ras Tanura. More than 75 percent of exports are loaded at Ras Tanura Facility.
2) The 3 to 3.6-million bbl/d Ras al-Ju'aymah facility on the Persian Gulf.
3) The Yanbu' terminal on the Red Sea, from which most of the remaining quarter is exported, has loading capacity of approximately 4.5 million bbl/d crude and 2 million bbl/d for NGL and products. The facility is reportedly not used to full capacity.

These and a dozen other smaller terminals throughout the country, appear capable of exporting a 14-15 million bbl/d of crude and refined products, around four million bbl/d higher than Saudi Arabia's current crude oil production capacity.

Major Domestic Petroleum Pipelines

Saudi Aramco operates more than 9000 miles of petroleum pipelines throughout the county, including two major pipelines. The 745-mile, 5 million-bbl/d East-West Crude Oil Pipeline (Petroline), has been operated by Saudi Aramco since 1984 (when it took over from Mobil), and is used mainly to transport Arabian Light and Super Light from Abqaiq refineries in the Eastern Province and to Red Sea terminals (Yanbu') for export to European markets. Reportedly, the Saudis expanded the Petroline in part to maintain Yanbu' as a strategic option to Gulf port facilities in the event that exports were blocked from passing through the Straits of Hormuz in the Persian Gulf. The Petroline is utilized at less than half capacity, as shipments from Yanbu' add up to five days roundtrip travel time for tankers through the Bab al-Mandab strait to major customers

in Asia. Also built in the 1980s was a 236-mile multi-products line between Dhahran in the Eastern Province and Riyadh and a 220-mile smaller multi-product line between Riyadh and Qassim to the north.

Running parallel to the Petroline is the 290,000-bbl/d Abqaiq-Yanbu' natural gas liquids (NGL) pipeline, which serves Yanbu's petrochemical plants. A $500 million contract to install three NGL pipeline loop lines on the Shedgum-Yanbu section of the trunk line, when completed between 2008 and 2009, will increase capacity to 555,000 b/d (SHY-1 expansion). The current capacity is 425,000 b/d. There are also six smaller pipelines that make up the Uthmaniya - Abqaiq pipeline complex.

To support increased export capacity, Aramco has announced the construction of more than 830 miles of new oil, natural gas and NGL pipelines of varying sizes and lengths by 2009. The biggest development will extend to the 1.2 million-b/d Khurais redevelopment, which will require a 400 to 500-mile network in the Eastern Province. The Manifa development has a planned installation of 221 miles of pipeline (gas and crude/condensate).

International Petroleum Pipelines

Saudi Aramco does not operate any major functioning international pipelines. The Trans-Arabian Pipeline (Tapline) from Qaisumah to Sidon, Lebanon, completed in 1974, has been mothballed, in part, since 1984 (the portion to Jordan was closed in 1990, through there has been talk of reopening this portion). Also, a 1.65 million-bbl/d, 48-inch Iraqi Pipeline across Saudi Arabia (IPSA), which runs parallel to the Petroline from pump station #3 (there are 11 pumping stations along the Petroline) to the port of Mu'ajjiz, just south of Yanbu, was built in 1989, but closed indefinitely following the August 1990 Iraqi invasion of Kuwait. In June 2001, Saudi Arabia seized ownership of IPSA. Theoretically, IPSA could be used for Saudi oil transport to the Red Sea, although the Saudis have reported that the pipeline has been converted to carry gas as part of the Master Gas System.

The only functioning international crude carrier is a 60-year old complex of four small submarine pipelines carrying Arabian Light crude from the Abu Saafra and Dammam fields to Bahrain. The pipelines range from 207,000 to 250,000 bbl/d capacity. Reportedly, this aging pipeline will be decommissioned after the construction of the "New Arabia" pipeline, a 71-mile, 350,000-450,000-bbl/d capacity feed running between Abqaiq and Bahrain's refinery at Sitra. The pipeline will be built by local contractors, and is expected to come online in 2008. Despite excess pipeline capacity, the Saudis reportedly are planning to conduct a feasibility study on construction of an oil pipeline from the Empty Quarter of southeastern Saudi Arabia through the Hadramaut in Yemen and the Arabian Sea (as additional strategic alternatives to the Straits of Hormuz), although details of the proposed project were not available.

Click HERE for a map of major pipeline networks in the Middle East.

Shipping

Saudi Aramco's shipping subsidiary Vela International Marine Ltd. operates the sixth largest fleet of supertankers in the world, including 19 VLCCs (very large crude carriers) and five product tankers. (Vela also contracts several dozen tankers in addition to their in-house fleet). Industry sources report that Vela commissioned six additional VLCCs from South Korea's Daewoo Shipbuilding & Marine Engineering Company in 2007. Two of four VLCCs were delivered in June 2008, and the final four ships will be delivered by 2009. The VLCC is designed to transport between 200,000 - 320,000 dead weight tonnage (dwt) or up to two million barrels of crude oil (per voyage). According to the Saudi Aramco website, the total loading capacity is approximately 7.5 million tons and the fleet carries a significant proportion of Saudi oil exports. Vela transports approximately 3 million bbl/d, more than 80% internationally.

The National Shipping Company of Saudi Arabia (NSCSA) fleet has a total of nine VLCC's, totaling, including two vessels delivered in 2007. According to industry sources, NSCSA, through its subsidiaries, National Chemical Carriers and Arabian Chemical Carriers, the company owns 14 chemical tankers, plus an extra four container vessels for a total of 27 vessels. NSCSA is a public company, although the Public Investment Fund (PIF) of the Saudi government holds 28 percent, while the remaining 72 percent is publicly traded. It was reported that the company plans to expand the VLCC fleet to 17 vessels, and has signed contracts for taking delivery of eight VLCCs during 2007 and 2009. NSCSA also contracted six new chemical carriers, of which the delivery is expected to start from the year 2009.

In addition to tankers, Aramco owns or leases oil storage facilities around the world, in places like Rotterdam, Sidi Kerir (the Sumed pipeline terminal on Egypt's Mediterranean coast), South Korea, the Philippines, and the Caribbean.

Natural Gas

For more than a decade, Saudi Aramco, the world's tenth largest natural gas producer, has aggressively explored on and offshore for additional reserves to meet growing demand, although success has been limited.

Reserves

According to the *Oil and Gas Journal*, Saudi Arabia has the fourth largest proven natural gas reserves in the world, estimated at 253 trillion cubic feet (Tcf). Over the last decade and a half, Saudi Aramco has added around 75 Tcf of non-associated reserves, including the fields: Mazalij, Manjura, Shaden, Niban, Tinat, Al-Waar, and Fazran in the deep Khuff, Unaizah and Jauf reservoirs. However, around 57 percent of Saudi Arabia's proven natural gas reserves consist of associated gas at the giant onshore Ghawar field and the offshore Safaniya and Zuluf fields. The Ghawar oil field alone accounts for approximately one-third of the country's proven natural gas reserves. Both associated and non-associated natural gas has also been discovered in the country's extreme northwest, at Midyan, and in the Empty Quarter (Rub al Khali) in the country's southeastern desert. The Rub al Khali is believed to contain natural gas reserves potentially as high as 300 Tcf, although these are not proven. The area remains under exploration.

Production and Consumption

Despite sizable reserves and increasing demand, dry marketed natural gas production and consumption in Saudi Arabia remains limited (estimated 2.59 Tcf in 2006). Highly subsidized prices and soaring costs of production, exploration, processing and distribution of gas have squeezed supply, while limiting investment in the sector and constraining other areas of economic and industrial growth. According to OPEC and other sources, an estimated 13 to 14 percent of total production is lost to venting, flaring, reinjection and natural processes. Saudi Arabia has no net imports or exports of natural gas.

According to Saudi Aramco forecasts, natural gas demand in the kingdom is expected nearly to double to 14.5 billion cubic feet per day (Bcf/d) by 2030, up from an estimated 7.1 Bcf/d in 2007 The situation is exacerbated by the fact that the majority of gas fields in Saudi Arabia are "associated" with petroleum deposits, or found in the same wells as the crude oil, and plans to increase production of this type of gas remain linked to an increase in oil production. The majority of new natural gas discovered in the 1990s has been associated in light crude oil, especially in the Najd region south of Riyadh. For this reason, Saudi Arabia has concentrated efforts to locate non-associated gas pockets onshore and in offshore formations. According to Saudi Aramco, only 15 percent of Saudi Arabia has been "adequately explored for gas." Traditionally, the power and desalination sectors, followed by petrochemicals and steel manufacturing, have made up the majority of demand for natural gas in Saudi Arabia. Consumer demand for power generation is also growing, particularly in the summer months.

Upstream Developments and Strategy

To meet growing domestic needs, in November 2006, the Petroleum Ministry and Saudi Aramco announced a $9-billion strategy to add 50 Tcf of non-associated reserves between 2006 and 2016 through new discoveries (and potentially another 50 Tcf of associated reserves). In order to free up petroleum for export, all current and future gas supplies (except natural gas liquids) reportedly remain earmarked for use in domestic industrial consumption and desalination. According to the 2007 Saudi Aramco Annual Review, the company has increased the rate of exploration, drilling 73 development and exploratory wells in that year, as compared to 35 in 2006 and 20 in 2005. Some 300 development and 70 exploratory wells are reportedly planned by 2010. According to Aramco, exploration and development will also commence in non-producing areas such as the Red Sea, northern and western Saudi Arabia, and the Nafud basin, north of Riyadh.

Upstream Activities in the Empty Quarter (Rub Al Khali)

The Saudi domestic natural gas market, traditionally the sole domain of Saudi Aramco, is slowly being opened to private investment both in exploration and distribution, and increasing competition in the market. The backbone of the non-associated gas exploration strategy relies on foreign consortiums exploring for onshore gas and condensate (natural gas liquids) in the Rub al-Khali, which officials hope will produce some 2 Bcf/d by 2011, although success has been limited. No commercial discoveries of natural gas have been reported in the dozen or more wells drilled by the consortia. Although limited gas discoveries have been made, the artificially low set price for domestic sales may render exploitation uneconomical.

The South Rub al-Khali Company (SRAK), a consortium of Saudi Aramco and Royal Dutch/Shell, is investing an estimated $2 billion in exploring more than 81,000 sq-miles in two separate

concession blocks (Blocks 5-9 and 82-85). The concessions surround the Shaybah and Kidan oil fields, abutting Oman and the UAE, and the Saudi-Yemeni border respectively. The consortium originally aimed to sell 500 MMcf/d gas and condensate to the Ministry starting in 2009. SRAK drilled its first exploration well of three in July 2006, (Isharat-1, a wildcat), and is now drilling its first in the Kidan North Fields, although any finds are expected to have high sulfur levels. In the SRAK consortium, Shell and Saudi Aramco are equal shareholders, following the withdrawal of Total in February 2008, due to rising costs.

In January 2004, Russia's Lukoil won a tender to explore for and produce non-associated natural gas and natural gas liquids in the Saudi Empty Quarter in Block A (11,000 sq miles), near Ghawar, as part of an 80/20 joint venture with Saudi Aramco, known as Luksar. In 2007, Luksar reported a “speculative” find of around 620 million bbl of unidentified hydrocarbon reserves (reported to include oil equivalent and condensate) in the Tukhman-3 area, although any oil finds would fall outside the consortium’s development rights.

At the same time, China's Sinopec won a tender for gas exploration and production in Block B (15,000 sq miles). Sino Saudi Gas, a venture of Sinopec and Aramco, has drilled at least three wells and in December 2007, reported the first natural gas find in the area (Sheeh-2) although the quantity is unconfirmed and geology reported to be complex. It has been reported that GAIL, a state-owned oil and gas company from India, is in talks with Lukoil to buy a stake in the joint venture. Finally, the Eni-Repsol YPF-Aramco consortium, EniRepSa Gas, was granted a license to operate in Block C (52,000 sq km), and drilled its first well in September 2006. The consortia have reported trace finds of natural gas.

The consortia have some 27 wells planned in total by 2009, when the five-year exploration contracts expire. The consortia have reportedly requested concession exploration extensions, and in May 2008, SRAK received an 18-month extension 2010. The development contracts cover a 40-year period, except SRAK, which holds a 25 year contract. Constraints on obtaining rigs have also slowed the pace of exploration over the past two years.

Other Upstream Developments

Saudi Arabia has prioritized gas development outside the Empty Quarter and recent non-associated gas finds are promising. The Karan gas field, discovered in April 2006, is the largest gas deposit yet discovered in the offshore Khuff formation, some 100 miles north of Dhahran. Initial data shows at least eight gas-bearing structures in the Khuff region around the Karan reservoir containing an estimated 9 Tcf of reserves. Of those, Karan alone is expected to produce some 1.5 Bcf/d when it comes online in 2012.

Upstream Natural Gas Projects (2004 - 2012)

	Field	Area	Projected Capacity Addition (bcf/d)	Expected Online	Notes
Non-Associated	Karan	Offshore Khuff Region	1.50	2012	Saudi Arabia's largest gas project currently in development. Recently increased production expection by 0.5 bcf/d.
	Ghazal	Onshore	0.13	2008	Producing approximately 0.27 bcf/d.
	Midrikah	Onshore	Unknown	TBA	
	Fazran	Onshore	Unknown	TBA	In testing.
Associated	Qatif/Abu Safa'a	Onshore	0.40	2004	
	Haradh	Onshore	0.25	2005	
	Khurais	Onshore	0.30	2009	
	Khursaniyah	Onshore	0.30	2008	
	Manifa	Offshore	0.12	2011	

Sources: Dow Jones, Reuters, Oil Daily, Saudi Aramco, Global Insight, MEES

According to Saudi Aramco, the offshore Jana-6 and an extension of Karan (Karan-7) were the only major gas finds in 2007. Discoveries in 2006 included an earlier extension of the Karan field (Karan-6), with the potential to add 80 Mcf/d to gas flows, and onshore, the Kassab-1 and the Zamalah wells in the Jauf Reservoir, which could add a combined 20 Mcf/d and more than 600 bbl/d of condensate. Finally, Najimaan-1 (Nujayman) reportedly has the potential production capacity in excess of 60 Mcf/d of gas and 2000 bb/d of condensate, according to Aramco sources.

Another large non-associated offshore natural gas field, Dorra (Durra), is located offshore near Khafji oil field in the Saudi-Kuwaiti Neutral Zone. Dorra development has been controversial since the late 1960s, however, because 70 percent is also claimed by Iran (called Arash). In addition, the maritime border between Kuwait and Iran remains un-demarcated. Saudi Arabia reached an agreement with Kuwait in July 2000 to share Dorra output equally, although the Kuwaitis are reportedly trying to purchase the Saudi share. According to Saudi Aramco, the field is estimated to contain non-associated gas reserves of between 35 and 60 Tcf of natural gas, and is under seismic study. The Kuwaiti Ministry of Oil has reported that the goal is to produce initially 600 MMcf/d from Dorra. Kuwait and Iran have intermittently discussed jointly developing the field, although production plans remain undisclosed.

Pricing

In addition to facing domestic supply shortages, Saudi has also come under pressure internationally for its subsidized natural gas prices. Trade partners have protested supplying highly subsided gas supplies to Saudi industries and utilities, arguing against alleged unfair and uncompetitive trade practices, while domestically, businessmen support low prices to encourage industrial growth and economic diversification. Generally, the price for natural gas for industrial and petrochemical use is set by the ministry at $0.75 MMBtu, some of the lowest in the Gulf (Global LNG exports are averaging around $8.00 MMBtu, in comparison). The low natural gas price is also a challenge to the foreign operators in the Kingdom looking to discover and exploit resources in the Empty Quarter.

In mid-2006, the local Eastern Gas Company (EGS) was awarded a two-year contract to become Aramco's gas distributor to consumers in the Dhahran industrial area. According to industry reports, EGC has rights to market 45 MMcf/d of gas a year to 35 industrial consumers. According to press statements, the purchase price from Aramco will be US$1.12 per MMBtu and a sale price of US$1.34/MMBtu. In Riyadh, the Natural Gas Distribution Company was granted a license to supply several small-scale manufacturing plants, with a similar pricing structure. For the time being, the price for foreign investors and other consumers remains steady.

Downstream Developments - Gas Processing

Saudi Arabia currently has seven gas processing plants with a total gas production capacity of approximately 9.3 Bcf/d, including 1.1 million bbl/d of natural gas liquids (NGLs) and approximately 2,700 tons of sulfur at facilities Berri, Shedgum, Uthmaniyah and Hawiyah. According to statements made by Saudi Aramco, the country aims to process an estimated 13 Bcf/d by 2009 through additional facilities and capacity expansion. Mega-project plans are currently underway at Khursaniya, Hawiya, Ju'aymah,Yanbu' and Khurais.

Domestic Gas Pipelines

Domestic demand, particularly the delivery feedstock to petrochemical plants, has driven consistent expansion of the nearly 8.0 bcf/d Master Gas System (MGS), the domestic gas distribution network in Saudi Arabia first built in 1975. Prior to the MGS, all of Saudi Arabia's natural gas output was flared. The MGS feeds gas to the industrial cities including Yanbu' on the Red Sea and Jubail. A key pipeline project was completed in June 2000 to extend the MGS from the Eastern Province (which contains large potential gas and condensate reserves) to the capital in the Central Province. This is part of a broader expansion of the existing gas transmission system in Saudi Arabia, reportedly to include the construction of around 1,200 miles of additional natural gas pipeline capacity (on top of 10,500 miles of oil, gas, and condensate, products, and natural gas liquid pipelines currently in operation). Since 2001, the MGS has been fed entirely by non-associated gas.

In order to feed the expanded gas processing facilities, several additions to the MGS are in the planning or construction phases. The largest pipeline to be built is the 132-mile conduit to the Rabigh complex and the existing Yanbu' NGL processing facility. Installation of four pipelines, totaling some 62-miles will connect Manifa to KGP and Ras az-Zour for gas processing and raw

power production.

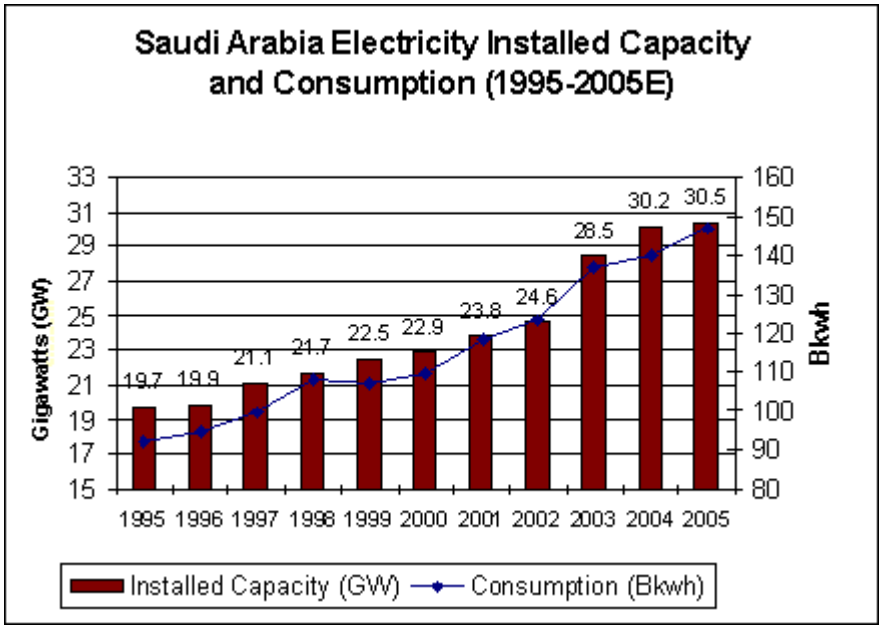
Reportedly the Riyadh Chamber of Commerce and Industry is planning a feasibility study with Russia's Stroytransgaz for the construction of another 7-Bcf/d domestic delivery system that will deliver gas from the Empty Quarter to customers in the east, central and western areas, and will include the construction of some 2000 miles of new pipeline. Construction hinges on a significant non-associated gas discovery in the Empty Quarter.

Electricity

Electricity Overview

Over the next two decades, Saudi Arabia's electric generation capacity is set to more than double – to 60 gigawatts (GW) - roughly equivalent to the current capacity of South Korea.

Similar to the situation in the natural gas sector, the combination of Saudi Arabia's rapidly expanding population and industrial base (representing 60 percent of demand), paired with artificially low power tariffs, has increased the demand on electric utilities (averaging 5 to 7 percent annual growth). At times, the increased load has lead to shortages, blackouts and power rations in various parts of the country. Saudi Arabia's Water and Electricity Ministry (WEC) estimates that the country will require at least 35 Gigawatts (GW) of additional power generating capacity by 2023-25 – more than double the 2005 estimate of installed capacity of 30.5 GW - at a cost of an estimated $120 billion. (According to the Saudi Electricity Company (SEC), capacity reached 35.9 MW in 2007). In addition, Saudi Arabia's state-owned Saline Water Conversion Corp. (SWCC) has estimated that through 2020, the country will need to spend at least $50 billion on water projects, many integrated with new power generation capacity, in order to meet the Kingdom's equally rapidly growing water demand. Most of this money is slated to come from the private sector, including foreign investors.



Source: Energy Information Administration, International Energy Annual (2005)

Feedstock for planned power capacity increases was originally expected to be natural gas and/or combined cycle. However, many new facilities may be crude-oil fired due to constraints on domestic natural gas supplies. A royal decree issued in the spring of 2006, requires that all future coastal power plants utilize crude feedstock at a set price of $0.46 per million BTU. According to a June 2008 report by Facts Global Energy, some 200,000 to 250,000 bbl/d of crude is being burned directly for power generation. All of Saudi Arabia's electric power generation is thermal.

According to the 2007 SEC annual report, Saudi Arabia added more than 2.3 GW last year, including expansions at the Shuaibah Power Plant and nearly 900 MW of gas fired turbines in Riyadh (9), Tehama and Jizan. Some of the newest and largest facilities include the $1.7-billion, 2400-MW Ghazlan II plant north of Dammam, the first power project to be debt-financed; its sister plant, the1600-MW Ghazlan I; and the 2500-MW Qurayya I and II.

Independent Water and Power Projects (IWPP)

Saudi Arabia's power sector, including generation, transmission and distribution, has traditionally

been dominated by the partly state-owned Saudi Electricity Company. However, In July 2002, the Supreme Economic Council passed a resolution setting out a framework for private sector involvement in developing mega-scale integrated Independent Water and Power Projects (IWPPs), and since that time the sector has become increasingly liberalized. Saudi Arabia aims to attract private sector investment for up to 60 percent equity in IWPP projects, with the remainder split between Public Investment Fund (PIF) and the SEC. In March 2004, Saudi Arabia announced their plan to launch ten IWPPs by 2016, at a total cost of around $16 billion (although this is said to be increasing). The SEC has already approved six such mega-projects. The majority of the facilities will be in the Western parts of the country, drawing from the Red Sea.

The combined production capacity of the original four projects, which are under construction or in the bidding phase, will produce more than 7000 MW (at final capacity) of power and 600 million gallons of water daily. They will boost the total desalination capacity of the kingdom by 80 per cent when the come online between 2009 and 2010. Also proposed is a 60-MW, 23-MMg/d Shuqaiq (III) extension.

Click HERE for a table of Saudi Arabia's IWPP projects.

Major Independent Power Projects

Throughout the kingdom, independent power projects (IPPs), which are not integrated with desalinization facilities, are also being tendered by the SEC, primarily to local contractors. According to the SEC, about 8000 MW of new capacity is currently under construction, 5200 MW of which are IPPs. The SEC is calling for ten percent of power generation to come from IPPs in the next decade. Three SEC-led IPPs are currently being planned include Rabigh (1200 MW, online 2012 or 2013), Riyadh-P11 (2000 MW, 2013 or 2014) and Al-Qurayyah (2000 MW, 2014 or 2015). The facilities will be built on a Build-Own-Operate (BOO) basis, and the SEC will be a partner.

In addition, several large-scale electricity IPPs are still in the planning phases, including 1,725-MW expansions at Muzahimiyah, and Shubuk, and Riyadh-PP10.

Major Cogeneration Facilities

Separately, Saudi Aramco is building a series of co-generation plants at oil and gas installations throughout the country in order to reduce drain of the energy sector on the national grid. For example, as part of the Khursaniya and Shaybah mega-projects, two cogeneration units with a combined capacity of 300 MW were installed. Also, a 380-MW plant is being constructed at Rabigh that will power the adjacent Sumitomo/Aramco petrochemical complex.

Transmission and Regional Interconnection

Besides generation, Saudi Arabia also requires additional investment in power transmission. At present, around 10 percent of the Kingdom's population lacks access to the national power grid. Aramco estimates that creating a unified national grid may require laying more than 20,000 miles of additional power transmission and distribution lines on top of the existing 150,000 miles of lines.

Saudi Arabia is also taking steps to interconnect their power grids with other Arab countries to benefit from differences in peak demand. The grids of the six Gulf Cooperation Council (GCC) countries are scheduled to be fully integrated by 2010. Saudi Arabia will take part in a linkup with Kuwait, Bahrain and Qatar by 2009. The US$1.2-billion first phase will include an overhead linkup to Kuwait and marine transmission infrastructure to Bahrain.

Non-Conventional Energy

In July 2006, the U.S.-based International Power Group, Ltd. (IPWG) was granted a three-year renewable license to conduct a feasibility study for a waste-to-energy (WTE) facility in the southwestern city of Jizan. Following the study, a US$300-million plant was commissioned, and is expected to come online in December 2008, although formal plans have not been publicized. According to IPWG, the WTE modules combust up to 180 tons of solid and hazardous waste, while generating 6 MW of electricity and up to 250,000 gallons of distilled water per day.

Profile

Energy Overview

Minister of Petroleum and Mineral Resources:	Ali bin Ibrahim al-Naimi (since 8/95)
Minister of Water and Electricity	Abdallah al-Husayn (since 4/04)
Proven Oil Reserves (January 1, 2008E)	269.25 billion barrels (includes half of Divided/"Neutral" Zone)
Total Petroleum Production – including the Neutral Zone (2007E)	10.2 million barrels per day (bbl/d), of which 9.7 million bbl/d was crude oil, 1.4 million bbl/d was natural gas liquids (NGLs), and 80,000 bbl/d was "other liquids" (including MTBE)
OPEC Crude Oil Production Quota (effective 7/01/2005)	9.099 million bbl/d. OPEC has since assigned Saudi Arabia production (but not quota) cuts of 380,00 bbl/d (effective November 1, 2006) and 158,000 bbl/d (effective February 1, 2007).
Crude Oil Production Capacity (12/06 E)	10.5-11.0 million bbl/d
Oil Consumption (2007E)	2.3 million bbl/d
Spare Capacity (12/06E)	1.5-2.0 million bbl/d
Domestic Crude Oil Refining Capacity (January 1, 2008E)	2.1 million bbl/d
Net Oil Exports (2003E), (2004E), (2005E), (2006E), (2007E)	7.7 million bbl/d, 8.1 million bbl/d, 8.6 million bbl/d, 8.9 million bbl/d, 7.9 million bbl/d
Major Oil Importers (2007E, approximate net exports)	United States (1.5 million bbl/d); OECD Europe 963,000 bbl/d); Japan (1.3 million bbl/d – OPEC says differently); South Korea (835,000 bbl/d); India (around 350,000-400,000 bbl/d); China (over 520,000 bbl/d) –; Taiwan (over 200,000 bbl/d)
Proven Natural Gas Reserves (January 1, 2008E)	253 trillion cubic feet (Tcf) (includes half of NZ)
Natural Gas Production/Consumption (2006E)	2.59 Tcf
Electricity Installed Capacity (2004E)	30.45 Gigawatts (all thermal)
Electricity Generation (2005E)	165.55 billion kilowatt-hours (Bkwh)
Electricity Consumption (2005E)	146.95 billion kilowatt-hours (Bkwh)
Total Energy Production (2005E)	25.5 quadrillion Btu* (5.5% of world total energy production).
Total Energy Consumption (2005E)	6.7 quadrillion Btu* (1.4% of world total energy consumption)
Energy Intensity (2005E)	17,979 Btu/$ -- PPP (vs U.S. value of 9,113 Btu/$)**

Environmental Overview

Energy-Related Carbon Dioxide Emissions (2005E)	412.35 million metric tons (1.5% of world carbon dioxide emissions)
Per-Capita, Energy-Related Carbon Dioxide Emissions (2005E)	15.61 metric tons (vs. U.S. value of 20.14 metric tons of carbon dioxide)
Carbon Dioxide Intensity (2005E)	1.11 metric tons/thousand $ -- PPP (vs U.S. value of 0.54 metric tons/thousand $) **
Environmental Issues	Desertification; depletion of underground water resources; the lack of perennial rivers or permanent water bodies has prompted the development of extensive seawater desalination facilities; coastal pollution from oil spills.
Major Environmental Agreements	A Non-Annex I country, party to United Nations Framework Convention on Climate Change (ratified December 28th, 1994), Desertification, Endangered Species, Hazardous Wastes, Law of the Sea and Ozone Layer Protection. Ratified the Kyoto Protocol on December 21, 2004.

Oil and Gas Industry

Organization	The Supreme Council governs the nationalized oil industry, including Saudi Arabian Oil Co. (Saudi Aramco) crude production and some natural gas production, refining/processing and marketing; Saudi Basic Industries Corp.

	(SABIC) for petrochemicals
Major Oil/Gas Terminals	Ras Tanura Facility (over 6 million bbl/d) Ras Tanura Port (2.5 million bbl/d), Ras al-Ju'aymah (3-3.6 million bbl/d capacity), Yanbu (over 6 million bbl/d capacity – of which 4.5 million bbl/d crude, remainder products/LPG), Jubail, Jiddah, Jizan Ras al-Khafji, Rabigh, Zuluf
Major Oil Fields	Abqaiq, Abu Saafa, Berri, Ghawar, Khursaniya, Najd, Qatif, Safaniya, Shaybah, Zuluf (in addition, Khurais and Manifa are partially developed and are being brought back online)
Major Pipelines (capacity – million bbl/d)	Domestic: Abqaiq-Yanbu Petroline (5.0), Abqaiq-Yanbu NGL line (0.3); International: Saudi Arabia-Bahrain (estimated 0.7) , Saudi Arabia-Iraq or IPS (1.6 -- closed since August 1990), TransArabia Tapline (0.5 -- closed since 1984), New Arabia: under construction, will replace pipeline to Bahrain
Major Refineries (capacity January 1, 2007E)	Aramco - Rabigh 400,000 bbl/d, Ras Tanura 550,000 bbl/d, Yanbu 235,000 bbl/d, Riyadh, 120,000 bbl/d, Jeddah 85,000 bbl/d; Saudi Aramco/Mobil - Yanbu 400,000 bbl/d; Petromin/Shell - al-Jubail 305,000 bbl/d; Mina Saud (Mothballed), Arabian Oil Company (Japan) - Ras al-Khafji (30,000 bbl/d – mothballed in 2005)
Major Gas Processing Facilities (capacity, 2006E)	Haradh (1.5 Bcfd), Hawiya (1.4 Bcfd.), Uthmaniya (2.5 Bcfd), Shedgum (2.4 Bcfd), Berri, Juaymah, Yanbu (all condensates, NGLs)

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power. The renewable energy consumption statistic is based on International Energy Agency (IEA) data and includes hydropower, solar, wind, tide, geothermal, solid biomass and animal products, biomass gas and liquids, industrial and municipal wastes. Sectoral shares of energy consumption and carbon emissions are also based on IEA data.
**GDP figures from OECD estimates based on purchasing power parity (PPP) exchange rates.

Links

EIA Links

EIA - Country Information on Saudi Arabia
EIA - Information on the Straits of Hormuz
EIA - Information on the Persian Gulf
EIA - OPEC Revenues Fact Sheet

U.S. Government

CIA World Factbook - Saudi Arabia
Library of Congress Country Study on Saudi Arabia
U.S. Consulate in Dhahran
U.S. Consulate in Jeddah
U.S. Commerce Country Commercial Guide
U.S Commercial Service – Saudi Arabia
U.S. Embassy in Riyadh
U.S. State Department's Background Note- Saudi Arabia
U.S. State Department Consular Information Sheet – Saudi Arabia
U.S State Department Travel Information Sheet – Saudi Arabia

Other Links

Arab News
BBC: Saudi Arabia
International Energy Forum Secretariat (IEFS)
Jeddah Water and Power Forum
Joint Oil Data Initiative (JODI)
National Shipping Company of Saudi Arabia (NSCSA)
Organization of Petroleum Exporting Countries (OPEC)
Royal Commission for Jubail and Yanbu
Saline Water Conversion Corporation
Saudi-American Bank (SAMBA)
Saudi Arabian Embassy in the United States
Saudi Arabian General Investment Authority (SAGIA)
Saudi Arabian Information Resource
Saudi Arabian Monetary Agency
Saudi Aramco
Saudi Aramco Mobile Refinery Company (SAMREF)
Saudi Aramco Shell Refinery Company (SASRF)
Saudi Basic Industries Corporation (SABIC)

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Saudi Electricity Company (SEC)
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